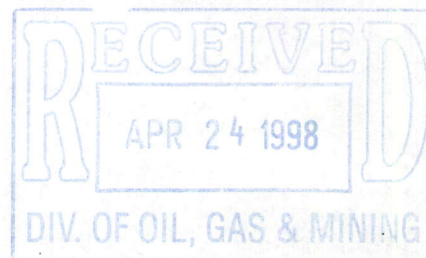


ROBERT E COVINGTON
CERTIFIED PROFESSIONAL GEOL GIST NO. 1705
P.O. BOX 1845
VERNAL, UTAH 84078

M/047/013



PHONE (801) 789-3233
FAX (801) 789-4560

April 23,, 1998

Utah Division of Oil, Gas & Mining
Attn.: Tony Gallegos
P.O..Box 145801
Salt Lake City, Utah 84114

Re: U.S.Gilsonite Lse. **UTU 76312**
Environmental Assessment Statement
Sec.15,, T9S-R24E
Uintah County, Utah

*SHAFT No. 8
AMENDMENT*

Dear Tony:

Enclosed please find a copy of the Environmental Assessment for the above cited Mine Plan. A copy of the Mine Plan was submitted to your office several months ago. This report will supplement the Mine Plan.

If you have any questions or comments, we would appreciate hearing from your office at your earliest convenience.

With best wishes, I remain

Very truly yours,

Robert E. Covington

ROBERT E. COVINGTON, CONSULTANT FOR
ZIEGLER CHEMICAL & MINERAL CORP.

cc: Gordon S. Ziegler, Jr.
Norman R. Haslem
Stan Perkes
Vernal District Office BLM
files

ENVIRONMENTAL ASSESSMENT
U.S.GILSONITE LEASE UTU 76312
SEC..15,,T9S-R24E
UINTAH COUNTY,,UTAH

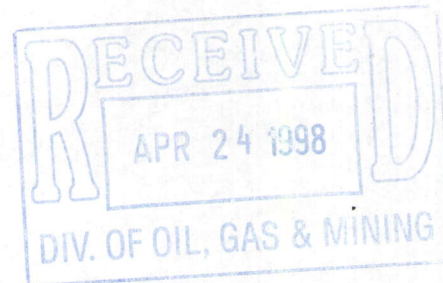
1.0 INTRODUCTION

Ziegler Chemical & Mineral Corporation (Ziegler) proposes to mine the Little Bonanza vein which occurs on U.S.Gilsonite Lease UTU 76312. The lease covers the SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 15, T9S-R24E, SLM, Uintah County, Utah. This property is located in the Book Cliffs Resource Area of the Uinta Basin and covers a 40 acre area which is described as the SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 15, T9S-R24E, Uintah County, Utah. Mining would begin as soon as the Mining Plan has been approved by the BLM and will continue for 3 to 5 years or until the gilsonite deposit has been exhausted. (Figure 1.1)

The proposed mine is located on the Little Bonanza gilsonite vein 50 miles southeast of Vernal, Utah in northeastern Utah. It lies 9 miles east of the Utah-Colorado state line (Figure 1.2), and is a part of the gilsonite vein system known locally as the Bonanza vein system. Gilsonite is an asphaltite, a solid hydrocarbon which occurs in near vertical fractures which range in width from a few inches to over 18 feet (the latter is the world famous "Cowboy Vein" which lies about 4 miles to the north). Nearly all of the gilsonite veins have a northwest-southeast trend. The minimum width of a workable vein is "the width of a man's shoulders" or about 22". In the Bonanza area the workable ore extends to a depth of 800 to 1200'. The surface formation is the Uinta formation in which most of the workable ore has been emplaced. The base of the Uinta formation is usually the base of the workable ore, as the underlying Green River formation is so massive and dense that it does not lend itself to wide fractures.

SEE SEPARATE BOUND VOLUME
FOR COMPLETE EA

M/047/013



ZIEGLER CHEMICAL & MINERAL CORPORATION

~~ENVIRONMENTAL ASSESSMENT~~

SUPPLEMENTAL INFORMATION

GILSONITE MINE PLAN

U.S. GILSONITE LEASE UTU 76312

SECTION 15, T9S - R24E

UINTAH COUNTY, UTAH

SHAFT No. 8
AMENDMENT

WITH AN ADDENDUM
TO THE MINING PLAN

REPORT FOR:

GORDON S. ZIEGLER, JR, PRESIDENT

ZIEGLER CHEMICAL & MINERAL CORP

MARCH 25, 1998

REVISED: 4-20-98

~~ENVIRONMENTAL ASSESSMENT~~
U.S. GILSONITE LEASE UTU 76312
SEC..15,, T9S-R24E
UINTAH COUNTY,, UTAH

M/047/013

SUPPLEMENTAL INFORMATION

SHAFT NO. 8 AMENDMENT

1.0 INTRODUCTION

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3.0.

AFFECTED ENVIRONMENT

All surface and mineral estates are owned by the U.S. and are under the management of the B.L.M. The area is drained by dry washes which drain into Cottonwood Wash which drains into the White River. These are intermittent streams, carrying water only after rainstorms or from melting snows during the Spring. The elevation averages 5300 feet. The mine area is essentially a dissected "table mesa", surrounded by a few, low lying, buttes. Of the twelve critical elements of the human critical environment, six are present in the area. These six are cultural remains and Native American religious concerns, (neither of these two are affected by the mining plan because there would be no new disturbance), air quality and water quality (neither of which would be affected because of the nature of the project) and the two remaining are threatened and endangered species and solid wastes, both of which are addressed in this EA. Because the project area has already been disturbed, no impacts to paleontological resources would be anticipated. Gilsonite itself-the only geologic feature that would be disturbed - contains neither archaeological nor paleontological resources because of its origin.

Mean annual precipitation is 9-10 inches, of which 4.5 inches fall during the 125 day growing season (Toy and Grim 1980). Vegetation is dominated by sagebrush, rabbitbrush, and juniper. The project area is included in Antelope Herd Unit 7-the Bonanza Herd. The terrain is located in an area of considerable physical activity (it is located near the center of the Ziegler Chemical & Mineral Corporation's gilsonite mining activity) with Ziegler patented lands lying west and south, adjacent to the proposed mining area. The area is also used for oil and gas development, livestock grazing and wildlife habitat. Utah State Highway 45 is 1.5 miles to the east of the project area and connects the Bonanza area with Vernal to the north and runs south across the White River six miles to the south.

2.0 PROPOSED MINE:

The proposed mine will be located on the Little Bonanza gilsonite vein. This area is about 50 miles southeast of Vernal, Utah. The mining activity will take place under U.S. Gilsonite Lease UTU 76312 in the SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 15, Township 9 South—Range 24 East, SLM, Uintah County, Utah.

This EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and in compliance with all applicable regulations and laws passed subsequently, including Council of Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) Parts 1500-1508), U.S. Department of the Interior (USDI) requirements (Department Manual 516, Environmental Quality) and guidelines listed in BLM "NEPA Handbook H-1790-1 (BLM 1988).

The development of federal gilsonite leases and associated facilities is an integral part of the BLM's leasing program under the authority of the Mineral Leasing Act of 1920 as amended, the Mineral Leasing Act for Acquired Lands and the Federal Land Policy and Management Act of 1976. This EA is within the Book Cliffs Resource Area and policies for development and land use decisions within this area are contained in the "Final Environmental Impact Statement on the Book Cliffs Resource Management Plan (BCRMP) (BLM 1984)". The Proposed Action would conform with BCRMP because gilsonite resources would be developed in lands deemed suitable for that use under a development scenario that gives adequate protection of the environment.

Environmental Assessments have been written on Ziegler properties 3 miles to the north (Mine Plan and EA for the Cowboy Mine) and has been approved and another was approved on Ziegler's Tom Taylor Mine Plan in Section 3 of Township 10 South—Range 24 East, 4 miles to the southeast, to which the reader is referred for additional data.

3.1 THREATENED, ENDANGERED, CANDIDATE AND OTHER SPECIAL STATUS

3.1.1 Threatened, Endangered, Candidate, and other Special Status Species

3.1.1.1 Black-footed Ferret (*Mustela nigripes*)

The black-footed ferret is an endangered species. Their locale is primarily wherever prairie dog colonies of sufficient size and acceptable location are found. The minimum size of a prairie dog colony or complex of colonies is an area of habitation of 250 acres or more, containing white tailed prairie dogs, which is probably the minimum required to constitute potential black-footed ferret habitat (U.S. Fish and Wildlife Service (USFWS)). Prairie dog colonies of the size and density to meet the criteria of USFWS do not occur in this area. No sighting of the black-footed ferret occur in the EA area. Neither the Proposed Action nor the No Action Alternative would affect black-footed ferrets because suitable habitation does not exist in the EA area.

The EA area is south of the 55,000 acre Coyote Basin Primary Management Zone (PMZ) which is proposed for the re-introduction of the black-footed ferret (*Mustella nigripes*), although it is within the larger buffer area that would be designated as the "experimental population area". The physical activities surrounding the lease from gilsonite mining operations on Ziegler patented lands, including their sack-ing plant,, grinding facilities, office complex and shops preclude the establishment of even prairie dogs, let alone the black-footed ferret.

3.1.1.2 Bald Eagle (*Haliaeetus leucocephalus*)

On officially designate critical habitat for the endangered bald eagle exists on the EA area. The physical activity of the EA area as stated above precludes their using the area as habitat and thus this species will not be further discussed.

3.1.1.3 Peregrine Falcon (*Falco peregrinus*)

No endangered falcons are known to nest in the EA area. No favorable nesting areas exist, and the physical activity of the gilsonite mining activity in the area preclude their nesting. Therefore, peregrine falcons will not be further discussed in this EA.

3.1.1.4 Whooping Crane (*Grus Americana*)

Whooping cranes, an endangered species, fly over the EA area on their migration flights. They do not use the EA area due to the large amount of physical activity in the area as stated above. Also, there is no suitable habitat in the area. Therefore, they will not be further discussed in this EA.

3.1.1.5 Fish

Two endangered fish occur in the White River which is located five miles to the southeast. Since the intermittent drainage flows into Cottonwood Wash, from the standpoint of drainage into the White River, the drainage basin lies approximately 6 miles to the southwest. Since there is no use of water in the mining of the gilsonite, there would be no water depletion, and due to the topography, no sediment is likely to reach the river. Therefore, the two endangered species, the Colorado Squawfish (*Ptychocheilus lucius*) and the razorback sucker (*Xylocheilichthys texanus*) will not be further discussed.

3.1.1.6 Candidate Animal Species

Candidate animal species that occur in the general vicinity of the project area include mountain plover (*Charadrius montanus*). Since plovers generally nest in the short-grass prairie habitat on the high, dry plains and are often associated with prairie dog colonies, they are not present in the EA area for the physical activity reasons previously discussed.

3.1.1.7 Other Special Status Wildlife Species

Four special wildlife species may occur in the vicinity of the EA area. The Golden Eagle is protected by the Bald Eagle Protection Act. The ferruginous hawk (*Buteo regalis*), the flannelmouth sucker (*Castostomus latipinnus*) and the roundtail chub (*Gila robusta*) need to be discussed. The fish are present only in the White River and the fish issue was dismissed on the fact that there is not likely to be any sediment from mining operations which would be carried to the river. The physical activity which has been previously cited precludes nesting of the Golden Eagle or the ferruginous hawk in the mine vicinity. As stated previously, no surface activity will be undertaken on the federal lease with which this mine plan is involved.

3.1.2 Threatened, Endangered, Candidate or Other Special Plant Species

Because of the already disturbed site conditions in the project area, no threatened, endangered, candidate, or plant species are likely to occur; therefore, no further discussion is included in this EA.

3.2 HAZARDOUS AND SOLID WASTES

No hazardous or solid wastes are known to be stored or to otherwise occur in the project. A letter was handed to the BLM's Vernal District office regarding the newly revised regulations on Hazardous Materials and on Water Depletion which ~~could~~ satisfy the requirements of this subject, as it refers directly to the lease and mine plan ~~under~~ discussion. (SARA 1986 requirement).

3.3 Recreation

The project area is located four to six miles from any possible recreation area and due to the physical mining activity, no surface recreation is considered to be feasible for the EA area.

3.4 PALEONTOLOGICAL RESOURCES

The following information is transcribed directly from Ziegler's In-House reports which the Company contracted with Mariah Associates, Inc. to prepare for the environmental analysis for the Cowboy-Bandana Mining Plan, covering lands in Section 33 of Township 8 South -Range 24 East, Uintah County, Utah three miles to the north and the EA for the Tom Taylor Mine, Section 3 of Township 10 South - Range 24 East, three miles to the south. The data contained herein is tied directly to those two environmental reports and studies. "The surface of the EA area consists of older pediment surfaces (Rowley et al. 1985) which are unlikely to contain fossils. These overlay the lower Uinta (the Wagonhound Member of Wood [1934]. Although the Wagonhound Member is rich in fossils, it would not be affected by the proposed action since only the gilsonite vein would be disturbed during mining".

3.5 CULTURAL RESOURCES

"Current information indicates that the Northern Colorado Plateau Cultural Region has been occupied by a variety of cultures beginning as early as 10,000 B.B. Material remains demonstrate a cultural process beginning with the earliest Paleoindian peoples (10,000-7,000 B.B.) and extending through the Archaic (ca. 7,000 B.C. to A.D. 300), the Formative Stages (ca. A.D..400 to 1100), the Late Prehistoric-Protohistoric Periods (ca. A.D..1200 to 1850) and the Historic-Modern Period initiated with the arrival of Euro-American trappers, explorers and settlers. Each cultural/technological stage, with the exception of the Late Prehistoric hunting and gathering Shoshonean bands featured a more complex lifeway and social order than occurred during the Paleoindian state of development (Hauck, 1991).

During the cultural resource study for Equitable Resources Energy development of the Coyote Basin oil field, seven to eight miles to the north of the proposed Little Bonanza mine and the EA area under discussion (on a high pediment surface which through erosion has been stripped off in the EA area under investigation), a variety of cultural resource sites were discovered. These sites were associated with occupation during the Middle Archaic Stage and the Late Prehistoric Period".

The EA area under investigation lies in a moderately dissected type topography, with few sites flat areas suitable for habitation. Since no surface disturbance is contemplated in this plan for underground mining, no disturbance of cultural sites is recognized.

3.6 SOILS AND WATERSHEDS

The EA area contains no perennial streams and is drained by ephemeral washes into Coyote Wash and thence to the White River. There are no flood hazards (U.S. Department of Housing and Urban Development 1986). The EA area has not been mapped for wetlands by the USFWS. It contains no permanent bodies of standing water, nor any riparian areas.

There are no significant soils in the EA area, other than local patches of alluvial sand and silt. The rocky, indurated outcrops of the lower Uinta formation occupy nearly the entire EA area. As a result, there are no high salinity soils in the EA area, and sediment yields range from 0.5 to 1.0 acre-ft/mi²/yr (1.4 - 2.8 tons/acre yr) (Bureau of Reclamation 1975) and average 2.0 tons/acre/yr.

4.0 ANALYSIS OF THE PROPOSED ACTION AND ALTERNATIVES

4.1 THE PROPOSED ACTION

4.1.1 Special Status Wildlife Species

This section of the EA is not meaningful, inasmuch as no wildlife will be disturbed for reasons previously stated.

4.1.2 Recreation

The Mine Plan covers an area around which considerable physical activity is evident at least 5 days a week. This activity consists of gilsonite mining operations, trucking of ore, bagging of ore, grinding and crushing operations, the business office of Ziegler Chemical & Mineral Corporation's activity, the company shop, the shower and change building and other related activities. Therefore, no recreation takes place in the area of the EA.

4.1.3 Mitigation

This section also does not apply. All mining will be underground and since the area has been previously disturbed, upon the conclusion of mining under this mine plan all necessary restoration requirements as may be set forth by the BLM will be complied with in a professional and workmanlike manner.

4.3 Unavoidable Adverse Impacts

Under the proposed action, no unavoidable adverse impacts have been anticipated. Under the No Action Alternative, there would be no unavoidable alternatives.

4.4 RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG TERM PRODUCTIVITY

The proposed Mine Plan for the Little Bonanza area on U.S. Lease UTU 76312 in Section 15 of Township 9 South --Range 24 East, Uintah County, Utah for Ziegler Chemical & Mining Corp. has estimated a mining plan which entails 5 to 8 years of continuous mining. The short term use of the mine entails no significant disturbances of wildlife or plant species, and gilsonite would be mined, sacked and transported from the area.

In the short-term under the No-Action Alternative there would be disturbance as previously set forth.

4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

None.

-GILSONITE REMOVED

4.6 CUMULATIVE IMPACTS

4.6.1 Reasonable Forseeable Development

At present there are no gilsonite Prospecting Permits which have been issued by the BLM. There are at least 24 pending Prospecting Permit Applications, most of which are more than three years old. To date none of the applications have been acted upon by the BLM. AS for gilsonite leases on federal lands, there are 12 authorized leases which are controlled by three companies. All of these are located in the northeastern part of the Uinta Basin, most of them being in the Bonanza area. The BCRMP (BLM 1984) stated that from 1 to 5 miles of unleased gilsonite vein lands would be leased between 1984 and 1994 and would thereon be subsequently developed. Continued activity in the area depends, to a large extent, upon the demand for gilsonite and gilsonite products, and upon the BLM releasing some of the potential gilsonite lands for Prospecting Permits, so that depleting reserves can be augmented and improved for long range economic sufficiency. The market price of gilsonite is an important factor.

5.0. INTENSITY OF PUBLIC INTEREST

The Mine Plan for U.S. Gilsonite Lease UTU 76312 in Section 15,, Township 9 South -- Range 24 East, Uintah County, Utah addresses issues associated with federal lands which lie between two parcels of patented lands belonging to Ziegler Chemical and Mineral Corporation. The north parcel contains the corporate field offices of the company, shop, shower and change building, parking areas and housing area. The parcel to the south of the federal lease contains mines and gilsonite workings of Ziegler. Not more than 1/4 mile separates the two: this is the EA strip in which underground mining is to take place. Because there is no expected surface disturbance, and hence no affect on plant and wildlife, and since there are no recreational localities within the EA area, it is felt that public interest in the proposed mine plan would be minimal. Copies of the EA will be made available at the Vernal District office of the BLM.

6.0 RECORD OF PERSONS AND GOVERNMENTAL
AGENCIES CONSULTED

AGENCY	INDIVIDUAL	POSITION
U.S. Fish and Wildlife Service, Salt Lake City, Utah	Robert E. Williams	State Supervisor
Utah Division of Wildlife Resources, Vernal, Utah	Clay Perschon	Regional Habitat Manager
Bureau of Land Management. Salt Lake City, UT	Stan Perkes	Mining Engineer
Bureau of Land Management Vernal, Utah	Pete Sokolosky	Geologist

8.0 REFERENCES

- Bureau of Land Management. 1984. Final environmental impact statement on the Book Cliffs Resource Management Plan. Vernal Dist., Bur. Land Manage. 519 pp.
- _____. 1988. National Environmental Policy Act handbook, H-1790-1. U.S. Dept. Interior, Bur. Land Manage.
- _____. 1994. Ziegler Chemical & Mineral Corporation Cowboy-Bandana Gilsonite Mine, Uintah County, Utah. EA No. 1994-39. Vernal Distr., Bur. Land Manage. 37 pp.
- Monson, B., and J. Parnell. 1992. The origin of gilsonite vein deposits in the Uinta Basin, Utah. *In* Hydrocarbon and Mineral Resources of the Uinta Basin, Utah and Colorado, T.D. Fouch, V.F. Nuccio, and T.C. Chidsey, Jr., eds., pp. 257-270. Utah Geol. Assoc. Guidebook 20. 366 pp.
- Toy, T.J., and D.S. Grim. 1980. A climate appraisal of the rehabilitation potential of strippable coal lands in the Green, Yampa, and White River drainage basins, Colorado, Utah, and Wyoming. U.S. Dep. Interior, Geol. Surv., Map MF-1212.
- U.S. Fish and Wildlife Service. 1989. Black-footed ferret survey guidelines for compliance with the Endangered Species Act. U.S. Dept. Interior, U.S. Fish Wildl. Serv. Denver, Colorado, and Albuquerque, New Mexico (April 1989). 10 pp. + append.
- Utah Division of Wildlife Resources. 1987. Native Utah wildlife species of special concern. Utah Division of Wildlife Resources, Salt Lake City, Utah.
- Verbeek, E.R., and M.A. Grout. 1992. Structural evolution of gilsonite dikes, eastern Uinta Basin, Utah. *In* Hydrocarbon and Mineral Resources of the Uinta Basin, Utah and Colorado, T.D. Fouch, V.F. Nuccio, and T.C. Chidsey, Jr., eds., pp. 237-256. Utah Geol. Assoc. Guidebook 20. 366 pp.

TO: Bureau of Land Management

FROM: Ziegler Chemical & Mineral Corp.
c/o Robert E. Covington, CPG #1705
Consultant to Ziegler Chemical & Mineral Corp.

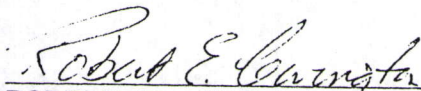
SUBJECT: Additional Environmental Review Elements
for Solid Minerals

- (a) Tom Taylor Mine and Mine Plan
U.S. Gilsonite Lse. U-0122694
Sec. 3, T10S-R24E, Uintah Co., Utah
- (b) Mine Plan for U.S. Gilsonite Lse. UTU 76312
SW¹/₄ Sec. 15, T9S-R24E
Uintah County, Utah

I. HAZARDOUS MATERIALS- as proponents of an action on BLM lands, namely, the underground mining of gilsonite, we have reviewed your list of hazardous materials and herewith have determined that the above described mining plans are in the negative category.

"Less than 10,000 pounds of any chemical(s) from EPA'S Consolidated list of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and reauthorization Act (SARA) of 1986, and less than the Threshold Planning Quantity (TPQ) of any extremely hazardous substance(s), as defined in 40CFR 355, would be used, produced, transported, stored, disposed, or associated with the proposed underground mining or, surface operations, annually. Vehicle and equipment fuel, lubricants, antifreeze and battery acid would be the only hazardous materials used or associated with the proposed action. Risk of a release would be very low, and the adverse environmental affect of a release would be minimal because it would be cleaned up immediately and disposed of in an approved waste facility".

II. WATER DEPLETION: No water would be used in the mining operations as proposed by the previously submitted mining plan.


ROBERT E. COVINGTON, CONSULTANT FOR
ZIEGLER CHEMICAL & MINERAL CORP.

cc: Gordon S. Ziegler, Jr.
BLM State Office, Stan Perkes
Howard Cleavinger, Vernal District Office
Norman R. Haslem

ADDENDUM TO ENVIRONMENTAL ASSESSMENT FOR THE
MINE PLAN FOR THE LITTLE BONANZA GILSONITE VEIN ON
U.S.GILSONITE LEASE UTU 76312, UINTAH COUNTY, UTAH

AND
ADDITION TO SUBMITTED PROPOSED MINE PLAN

SUBJECT TITLE (per BLM) : "Fringe Acreage Lease"

1. Certain existing On Lease Surface Facilities

When the lands were State of Utah lands a sacking plant was built by Ziegler Chemical and Mineral Corp. on an adjoining 2.5 acre tract on which the surface use was patented to the Ziegler Company. A mistake by surveyors in utilizing an incorrectly re-located corner which had accidentally been hit by a dozer and then replaced where "they thought it had been" resulted in a small corner of the sacking plant being located on the State land, now BLM land (SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec.15, T9S-R24E). With reference to this overlap of the sacking plant building, before completion of the mining under the proposed Mine Plan as addressed above, a BLM realty authorization would be applied for and obtained before the completion of mining on this lease.

2. Certain existing access roads around the north and northeast side of the sacking plant.

There now exists an access road which winds around the north and east side of the sacking plant. This road will be reclaimed and will be reseeded in conformance with the requirements of the Vernal office of the BLM and with their approval.

3. Certain old gilsonite stockpile remnants..



There are presently several old stockpile remnants which Ziegler will clean up and will rehabilitate the sites and reseed them in a manner consistent with good reclamation practice.

ADDENDUM TO MINE PLAN AND INCLUSION IN ENVIRONMENTAL
ASSESSMENT, CONTD..

U.S.GILSONITE LEASE UTU 76312

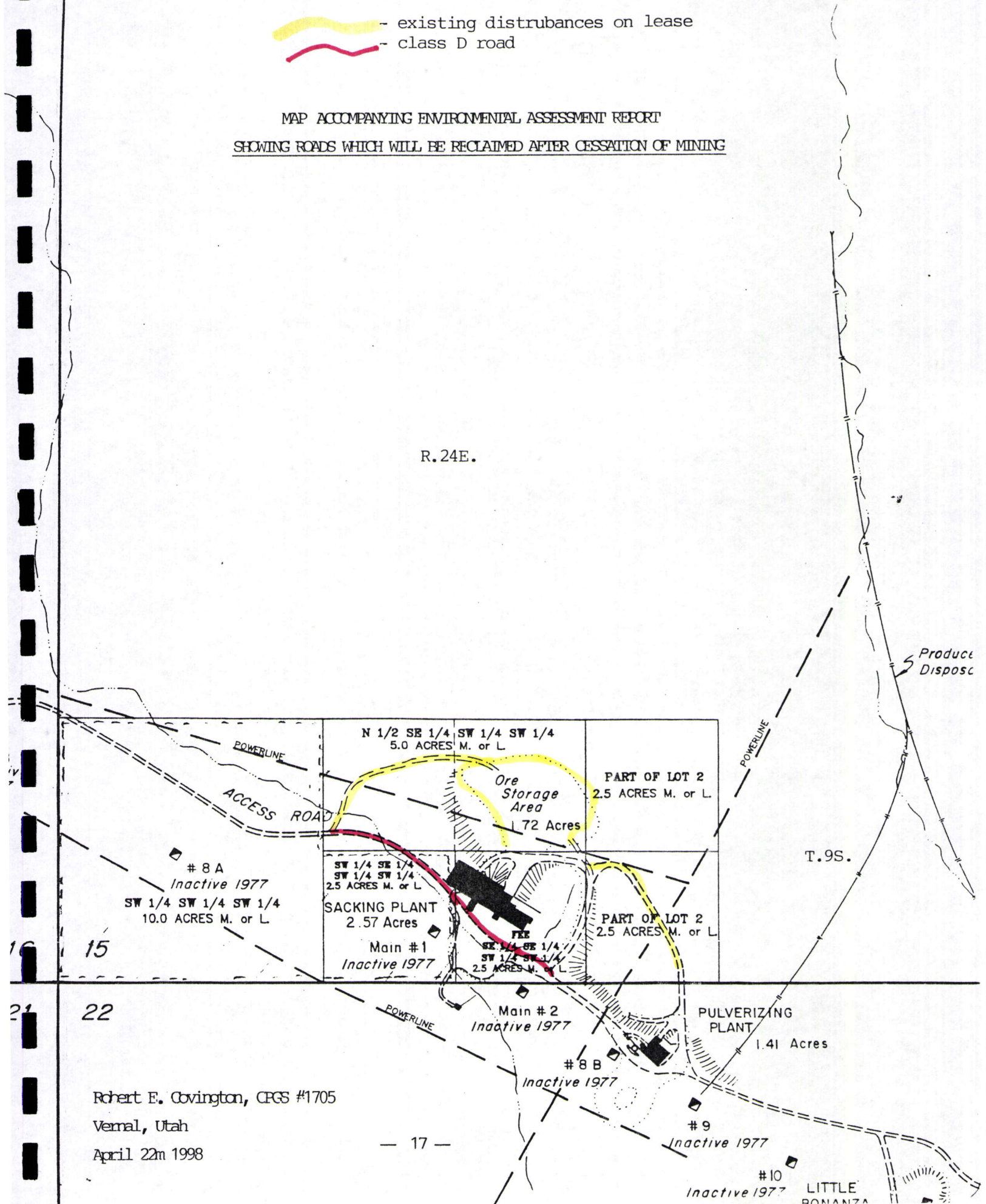
4. Discussion of the Uintah County Class "D" Road

A Class "D" dirt road crosses the lease in an east-west direction. The road has been in existence since the 1920's and is maintained by Uintah County. The reclamation of this road is NOT a part of the submitted Mine Plan for the above referenced lease and will not be rehabilitated after the cessation of the mining activity on the lease. This road lies immediately southwest of the Ziegler sacking plant.

-  - existing disturbances on lease
-  - class D road

MAP ACCOMPANYING ENVIRONMENTAL ASSESSMENT REPORT
SHOWING ROADS WHICH WILL BE RECLAIMED AFTER CESSATION OF MINING

R.24E.



Robert E. Covington, CEGS #1705
Vernal, Utah
April 22m 1998